DOCUMENT RESUME

ED 250 548 CE 040 095

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TITLE A Factor Analytic Investigation of the Needs of Older Students Enrolled in College.
PUB DATE Nov 84
NOTE 54p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (13th, New Orleans, LA, November 14-16, 1984).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Adult Education; *Adult Students; Cluster Analysis; *College Students; *Educational Needs; Factor Analysis; Higher Education; *Individual Needs; Multivariate Analysis; National Surveys; Needs Assessment; *Nontraditional Students; Statistical Surveys; *Student Needs
IDENTIFIERS Higher Education for Adult Mental Health Project

ABSTRACT

A study examined the needs of older students (individuals 26 years old and older) enrolled in college. The population of the study included undergraduate adult learners enrolled in the 18 institutions participating in the Higher Education for Adult Mental Health Project. Usable surveys were returned by 852 individuals from 14 of the 18 institutions contacted. These adult learners, or nontraditional students, were most likely to be female, white, married without children, employed full-time, and out of school for a period of 2-5 years. A principal factor analysis of the completed survey instruments resulted in the extraction of eight needs factors: interest in job and career planning, concern for personal welfare, personal relationships, need for basic academic skills, institutional reentry concerns, special family problems, working student concerns, and special problems. These eight factors accounted for 57.7 percent of the total variance. Numerous pairs of means were found to be significantly different throughout the dependent variables; students who were older, had more children, were widowed, were divorced or separated, or who had been away from school for more than two years tended to have higher need means on the different factors than did other students. Two higher-order factors--internal student concerns and external student concerns--resulted from a second-order factor analysis. (MN)

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A FACTOR ANALYTIC INVESTIGATION OF THE NEEDS OF OLDER STUDENTS ENROLLED IN COLLEGE

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Presented at the Thirteenth Annual Meeting
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New Orleans, Louisiana
November 13-16, 1984

CE040095

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A Factor Analytic Investigation of the Needs of Older Adults Enrolled in College

Introduction

An appreciable increase in the number of adult learners, 25 years old and older, enrolling in or returning to institutions of higher education has occurred over the past decade. These nontraditional students typically are either initially enrolling in college or are returning to college to complete their undergraduate degrees. If this trend of increasing adult learner enrollments is to continue, the needs of these students must be identified. Once these needs are known, programs and services may be developed and instituted to ensure that these older students continue their education.

Background of Investigation

The Higher Education for Adult Mental Health Project, funded by the National Institute for Mental Health (NIMH) and conducted by the Center for the Study of Higher Education, College of Education, Memphis State University, was developed in part to investigate the needs of adult learners, to institute model programs based on the needs of adult learners, and to advance research and theory concerning adult development.

The project, which was initiated in 1980, included 18 institutions of higher education. These institutions were chosen to participate in the project on the basis of their mission regarding adult learners, interest in adult learners, student services for adult learners, and commitment to develop programs for adult learners. The institutions

participating in the project were: The University of Alabama, The University of Alabama in Birmingham, Ball State University, Birmingham-Southern College, College of Charleston, College of New Rochelle, Columbia College, East Arkansas Community College, University of Florida, Judson College, Mary Baldwin College, Memphis State University, Millsaps College, Rockland Community College, Sacred Heart College, Salem College, Saint Mary-of-the-Woods College, and Webster College. These institutions include large state universities, community colleges, private liberal arts colleges, and women's colleges.

The enrollments of these institutions range from 28,000 full-time students and 3,000 part-time students at the University of Florida to 400 full-time and 300 part-time students at Saint Mary-of-the-Woods College. The proportion of full-time students over the age of 25 years varies greatly among the institutions. The percentage of full-time students over 25 years of age at the College of New Rochelle is 92%; Webster College, 64%; University of Alabama in Birmingham, 44%; Memphis State University, 43%. At the other end of the continuum, the percentage at the University of Florida is only 22%; Rockland Community College, 18%; and Ball State University, 7%. The proportion of part-time adult students ranges from 88% at Webster College, 67% at Ball State University, 65% at Rockland Community College, 52% at East Arkansas Community College, 40% at Saint Mary-of-the-Woods College, to only 18% at Charleston College.

The present study, however, was designed as an entity having goals and purposes separate from those of the NIMH Project. This investigation was undertaken subsequent to the termination of the Project and the submission of required reports to the funding agency.

The data used in this investigation were from the data base developed for the NIMH Project, although more delimited. Also, the statistical techniques and analyses performed in this investigation were not related to those performed within the project.

Research Purpose

The purpose of this study was to determine the needs of adult learners based on data from selected institutions of higher education and to corroborate previous research outlining the needs of adult learners. To accomplish this goal, the factor structure of the Adult Learner Needs Assessment Survey was investigated. Once the validity and reliability of the ALNAS were established, the identified dimensions underlying adult learner needs were further analyzed to determine any differences in these needs based on specified demographic variables.

Hypotheses to be Tested

The hypotheses investigated by this study are the following:

1. There is no difference between male and female adult learners on the means of need factor scores measured by the ALNAS.
2. There is no difference among adult learners enrolled in state universities, community colleges, private liberal arts colleges, and women's colleges on the means of need factor scores measured by the ALNAS.
3. There is no difference among adult learners on the means of need factor scores measured by the ALNAS when subjects are classified on selected demographic

variables:

A. Age

B. Marital status

C. Number of dependent children

D. Years out of school

The above hypotheses were tested at the .05 level of significance.

Definition of Terms

Selected terms that are used throughout this study are defined as follows:

Adult Learner - a student who is over the age of 25 years and who has either just entered college or returned to college after a delay of over a year in his/her education, who is either enrolled in an adult program at his/her institution, or has been identified as an adult learner by his/her institution.

Adult Student - synonymous with the definition of adult learner.

Traditional Student - a student who is 25 years old or younger and has entered college within a year of graduating from high school and has maintained continuous enrollment.

Significance of the Study

It is expected that the findings of this study will provide information to administrators, faculty members, and counselors on the special needs of adult students at the selected institutions as well as similar institutions in similar geographic locations. Selection and registration policies concerning adult students may be modified based on the findings of this study. Programs and services may be developed

which will better serve the needs of adult learners in an attempt to ensure the continuing education of these students.

It is also expected that the findings of this study will provide information verifying the validity of the ALNAS as an instrument which measures the needs of adult learners. If the ALNAS identifies need areas consistent with prior research, personnel at institutions of higher education will have a reliable instrument available to measure the needs of their adult students. Furthermore, the utilization of a factor analysis to identify adult learner needs will present a sophisticated statistical technique by which to investigate and identify these needs.

Target Population

The population of this study included undergraduate adult learners enrolled in institutions participating in the Higher Education for Adult Mental Health Project. These institutions were the University of Alabama, University of Alabama in Birmingham, Ball State University, Birmingham-Southern College, College of Charleston, College of New Rochelle, Columbia College, East Arkansas Community College, University of Florida, Judson College, Mary Baldwin College, Memphis State University, Millsaps College, Rockland Community College, Sacred Heart College, Salem College, Saint Mary-of-the-Woods College, and Webster College. This population consisted of students 26 years old and older who had either just entered college or who had returned to college after a delay in their education. Four subsets of the population investigated were (a) adult learners at state universities, (b) adult learners at community colleges, (c) adult learners at private liberal arts colleges,

and (d) adult learners at women's colleges. These populations may be considered representative of other adult learners in similar institutions in the same geographic regions.

Instrumentation

The Adult Learner Needs Assessment Survey (ALNAS) is an instrument developed by the American College Testing Program (ACT) to evaluate personal and educational needs of adult learners. This survey is a four-page optically scannable questionnaire comprised of five (5) sections:

Section I - Background Information

Section II - Educational Plans and Preferences

Section III- Personal and Educational Needs

Section IV - Additional Questions

Section V - Comments and Suggestions

1. Section I is concerned with demographic information such as age, race, sex, marital status, number of children, highest level of education, length of time since last enrollment, and other variables.
2. Section II concerns reasons for continuing education, sources of funds for an education, type of enrollment preference, class/format preference, preference for attending class, and preference for frequency of class meetings.
3. Section III consists of 66 need items categorized into four (4) need areas: Life Skills Development (items 1-18), Career Development (items 19-31), Educational Planning

(items 32-48), and Association With Others (items 49-66).

Each item has five (5) possible responses:

I Need A Lot Of Help In This Area

I Need A Medium Amount Of Help In This Area

I Need A Little Help In This Area

This Area Is Important, But I Need No Further Help

This Area Is Not Important Or Does Not Apply To Me

4. Section IV allows up to 30 additional questions which can be added by the researcher.
5. Section V allows respondents to make comments or suggestions regarding their needs or regarding the survey.

Additional demographic information, as well as information concerning student attitudes about certain aspects of their institutions not included on the ALNAS, was requested by the use of 30 additional questions (Section IV). These questions were developed by the researcher with the assistance of other NIMH project staff members. This information was collected for use in other aspects of the project and by the institutions but was not used in this study. A copy of the questionnaire is included in Appendix A.

Another questionnaire consisting of 13 open-ended questions was developed in order to allow the students to express their feelings and attitudes toward other aspects of their institutions. This information also was more informative for the respective institutions and was not made a part of this study. A copy of this questionnaire is included in Appendix B.

Data Collection Procedures

The ALNAS, the 30 additional multiple-choice questions, and the 13 open-ended questions were mailed to the respective institutional personnel involved in the project in January, 1983. The surveys were then distributed by mail or by classroom administration to adult learners at the institutions. Initial collection of the instruments was performed during January, 1983. Follow-up procedures continued throughout February and March and all need assessment forms used in the study were returned to the researcher by the latter part of March, 1983. Responses from 4 of the 18 institutions, however, were not returned. These institutions were Columbia College, Judson College, the University of Alabama, and Webster College.

The ALNAS forms were processed by ACT in Iowa City, Iowa, and returned during May, 1983, with tabulated data on each institution as well as a composite for all schools. The ACT tabulations, based on 852 usable surveys, included frequency counts for all ALNAS items, the 30 additional questions, additional subgroups requested by project staff, and weighted need indices for the 66 need items in Section III. The participating institutions were sent a copy of the results for their own analyses and investigations. The open-ended questions were read and summarized for each institution by the investigator. Summaries were sent to the institutions along with the actual questions and responses.

Since the objectives of this study were different from the ojectives of the project, some data collected were not appropriate for this investigation. Due to the limitations of the study, data concerning students under 26 years of age and students enrolled in

graduate courses were eliminated from the analyses. As a result of the limitations, the final sample size was 451.

Data Analysis Procedures

To perform the analyses of this study, the data were analyzed by use of the Statistical Package for the Social Sciences (SPSS). The data were recorded on a magnetic tape prepared by ACT and sent to the investigator. Each of the 66 need item responses was ordinally coded at ACT (I Need a Lot of Help = 1,...,This Area Is Not Important Or Does Not Apply To Me = 5). Data screening was accomplished utilizing the SPSS frequency program.

Following data entry and screening, the statistical analyses were performed using the SPSS statistical package. The analyses used to test the hypotheses of this investigation were:

1. Principal factor analysis to determine the factor structure of the ALNAS and to compute factor scores for each subject.
2. Multivariate analyses of variance, univariate analyses of variance, and Scheffe post-hoc procedures to determine differences in mean factor scores for adult learners enrolled in state universities, community colleges, and private, liberal arts colleges, and women's colleges; and to determine differences in mean factor scores among adult learners on the basis of specified demographic variables.

Factor Analysis

Principal factor analysis was utilized to examine the factor structure of the Adult Learner Needs Assessment Survey. Using this type

of analysis, the interrelationships of the 66 need items in Section III of the ALNAS were examined in an attempt to represent these variables as a function of a smaller number of underlying hypothetical dimensions or factors. To determine these underlying constructs, the following steps were undertaken:

1. The variable correlation matrix was examined.
2. Initial factors were extracted from the correlations using principal factor analysis.
3. A final solution was obtained through an oblique rotation of the initial factors.

Multivariate Analyses of Variance

Once the dimensions underlying the ALNAS were determined, factor scores for each subject were computed on these factors. Using these scores as dependent variables, multivariate analysis of variance (MANOVA) was utilized to test differences in the mean factor scores among adult learners enrolled in state universities, community colleges, private liberal arts colleges, and women's colleges. MANOVA was also used to test differences for the following variables: age, marital status, number of children in family, and number of years out of school. Hotelling's T-square, which compares group means of two groups measured on two or more dependent variables, was utilized to test differences in the mean factor scores between male and female adult learners. Univariate analyses of variance and Scheffe post-hoc comparisions were used as follow-up procedures to the MANOVAs.

Analyses and Results

The findings and results of the data analyses are presented as follows.

Student Characteristics on the Demographic Variables

Descriptive information on demographic variables utilized in Section I of the Adult Learner Needs Assessment Survey (ALNAS) is presented in Tables 1 and 2. As would be expected from a review of the literature, a majority (71.0%) of the students were women. By race, the majority (73.6%) of the students were white, 15.7% were black, and 5.6% were other races. The median age of the students was 36.0 years of age, and the mean age of students 26-61 years old was 35.2 years of age with 4.8% of the students being 62 years old and older. The largest age categories of students were 26-29 years old (23.3%), 30-39 years old (22.6%), and 35-39 years old (20.9%). Although small in number, students in their 50s, 60s, and older whose needs must also be addressed were in the sample. Over half of the students (58.6%) were married while other students reported being single, divorced, separated, or widowed. Less than half of the students (40.5%) reported having no dependent children, and more than one-fourth of the students (26.4%) reported having two dependent children.

The income range with the largest frequency was $12,000-$20,999 (19.6%) with 15.3% of the students being in the $21,000-$29,999 income range. A substantial proportion of the students (27.8%) had annual incomes below $12,000.

Table 3 contains additional information concerning student preferences. Although a majority (53.6%) of the students preferred

Table 1

Distribution of Subjects on the Variables of
Sex, Race, Marital Status, Age, and Family Status

Characteristic	n	%	Characteristic	n	%
SEX			AGE		
Male	159	27.7	26-29	126	23.3
Female	384	71.0	30-34	122	22.6
RACE			35-39	113	20.9
White	398	73.6	40-44	63	11.5
Black	85	15.7	45-49	41	7.6
Other	30	5.6	50-54	21	3.9
MARITAL STATUS			55-61	16	3.0
Single	79	14.6	62+	25	4.6
Married	317	58.6	FAMILY STATUS		
Divorced	75	13.9	No Children	219	40.5
Separated	34	6.3	1 Child	96	17.7
Widowed	23	4.3	2 Children	143	26.4
			3 Children	52	9.6
			4+	23	4.3

Table 2

Distribution of Subjects by Income Level

Income	n	%
Less than $6,000	66	12.2
$6,000 to $8,999	35	6.5
$9,000 to $11,999	28	5.2
$12,000 to $14,999	33	6.1
$15,000 to $17,999	38	7.0
$18,000 to $20,999	35	6.5
$21,000 to $23,999	29	5.4
$24,000 to $26,999	26	4.8
$27,000 to $29,999	28	5.2
$30,000 to $34,999	50	9.2
$35,000 to $39,999	29	5.4
$40,000 to $44,999	22	4.1
$45,000 to $50,000	18	3.3
Over $50,000	33	6.1
Prefer Not To Respond	48	8.9

Table 3

Distribution of Subjects on Their Preferences Based on Enrollment Status, Class Time, Class Frequency, Class Type, Class Location, and Class Format*

Preference	n	%	Preference	n	%
ENROLLMENT STATUS			CLASS TYPE		
Full-time	290	53.6	Primarily Adults	125	23.1
Part-time	210	38.8	Mixed Ages	213	39.4
CLASS TIME			No Preference	166	30.7
Morning	151	27.9	CLASS LOCATION		
Noon hour	13	2.4	On-Campus	306	56.6
Afternoon	41	7.6	Off-Campus	90	16.6
Evening	219	40.5	No Preference	106	19.6
Weekend	20	3.7	CLASS FORMAT		
No Preference	41	7.6	Lecture	218	40.3
CLASS FREQUENCY			Small Group	152	28.1
Once Weekly	113	20.9	Independent Study	46	8.5
Twice Weekly	239	44.2	Laboratory	26	4.8
3 or 4 Times Weekly	84	15.5	Private Tutor	14	2.6
5+	4	.7	Correspondence	11	2.0
Other	12	2.2	Other	3	.6
No Preference	42	7.8	No Preference	32	5.9

* Responses do not total 100% due to missing data.

full-time status, a substantial percentage (38.8%) indicated a preference for part-time status. Students also indicated a preference for evening classes (40.5%) and morning classes (27.9%) with other class times receiving only minimal support. Nearly half of the students (44.2%) preferred twice weekly classes with 20.9% preferring once weekly classes and 15.5% preferring classes three or four times a week. The students in the sample expressed their preference for classes with students of mixed ages (39.4%) over classes comprised primarily of adult learners (23.1%).

In response to the location of classes, a majority of students preferred on-campus classes (56.6%) over off-campus classes (16.6%). The class format most preferred was a lecture class (40.3%) with small group classes being preferred by 28.1% of the students.

The 30 additional questions were utilized to secure demographic information and personal attitudes not elicited by the ALNAS. Although much of this information was more relevant to the respective institutions and, therefore, was not included in this study, some of the demographic data are presented in Table 4. A slight majority of the students (52.3%) were employed full-time outside the home. Enrollment status was evenly divided between full-time students (48.1%) and part-time students (47.0%). These percentages were somewhat different from the status preferences previously presented in Table 3. Student classifications ranged from seniors (26.8%) to freshmen (19.0%). The time period that students had been out of school before their current enrollment ranged from one year and less to over 20 years. Students who had been away from school 0-1 year comprised 23.5% of the sample. A

Table 4

Distribution of Subjects on
Employment and Student Characteristics*

Characteristic	n	%
EMPLOYMENT STATUS OUTSIDE THE HOME		
Full-time	283	52.3
Part-time	83	15.3
Not Employed Outside The Home	163	30.1
STUDENT CLASSIFICATION		
Freshman	103	19.0
Sophomore	133	24.6
Junior	119	22.0
Senior	145	26.8
Other	25	4.6
ENROLIMENT STATUS		
Full-time	260	48.1
Part-time	254	47.0
YEARS OUT OF SCHOOL		
0-1 Year	127	23.5
2-5 Years	105	19.4
6-9 Years	71	13.1
10-14 Years	74	13.7
15-19 Years	60	11.1
20 Or More Years	90	16.6

* Responses do not total 100% due to missing data.

substantial percentage of students (16.6%) had been out of school for 20 years or more.

Principal Factor Analysis

This section presents the results derived from the factor analysis of the Adult Learner Needs Assessment Survey. It includes the initial components, selection of the number of factors, final communalities, final eigenvalues, pattern matrix, and interpretation of the factors.

Initial Components

Principal factor analysis with iterations was utilized to obtain a factor solution. As a first step, factors were extracted from the unaltered correlation matrix. In effect, a principal components solution then resulted in 66 components which were exact mathematical transformations of the original variables. Each of these components was associated with a respective eigenvalue which represented the proportion of total variance explained by the component. The first 15 components and associated eigenvalues are presented in Table 5. The results of Table 5 indicated that 11 of the components extracted from the unaltered correlation matrix had eigenvalues greater than 1.0.

Based upon this criterion, these 11 components or factors were iteratively extracted from the reduced correlation matrix in which the diagonal elements were replaced with the communality estimates of the variables. This iterative procedure resulted in final eigenvalues for the 11 factors as presented in Table 6.

Table 5

Initial Eigenvalues and Percent of Variance
After Extraction from Unaltered Correlation Matrix

Factor	Eigenvalue	% of Variance
1	24.89976	37.7
2	4.68910	7.1
3	3.21614	4.9
4	2.71898	4.1
5	1.70700	2.6
6	1.59781	2.4
7	1.33874	2.0
8	1.23520	1.9
9	1.16531	1.8
10	1.12302	1.7
11	1.01181	1.5
12	.92436	1.4
13	.89140	1.4
14	.82538	1.3
15	.80879	1.2

Table 6

Final Eigenvalues and Percent of Variance
for Eleven Factors

Factor	Eigenvalue	% of Variance
1	24.52641	60.3
2	4.37136	10.7
3	2.82331	7.0
4	2.30662	5.7
5	1.36995	3.4
6	1.21135	3.0
7	.99150	2.4
8	.84522	2.1
9	.81458	2.0
10	.74762	1.8
11	.65888	1.6

Selecting the Number of Factors

Utilization of the Kaiser-Guttman method resulted in 11 factors initially having eigenvalues greater than 1.0. The same criterion was used to determine the number of factors by the SPSS PA2 method. However the Kaiser-Guttman method tends to overestimate the number of factors when the number of variables exceeds 50 (Cattell, 1978).

Therefore, a second method, the scree test, was utilized by plotting the eigenvalues of the 11 factors on a graph. The plotted eigenvalues were inspected, and eight eigenvalues appeared before a scree or horizontal slope was detected. As a result, the scree test indicated that an eight-factor solution was appropriate.

Since the type of rotational method had not been determined at this point, both orthogonal and oblique rotations were performed upon the 11 factors. The respective structure and pattern matrices were inspected to determine the number of items having loadings with absolute values greater than .30. Factors having three or more such items were retained. The oblique rotation resulted in eight factors, and the orthogonal rotation also resulted in eight factors with a ninth factor having exactly three item loadings with an absolute value greater than .30.

Finally, the loadings from the rotated matrices were squared and summed for each of the eleven factors. According to Tabachnich and Fidell (1983), any factor having a summed squared loading (SSL) greater than 1.0 after rotation may be retained as a reliable factor. The SSL for the orthogonally and obliquely rotated factors are presented in Table 7. This procedure resulted in nine factors having a SSL greater than 1.0 for both rotations.

Table 7

Summed Squared Loadings for 11 Factor Orthogonal and Oblique Rotations

Factor	SSL-Orthogonal	SSL-Oblique
1	8.49	6.59
2	7.33	4.79
3	6.09	3.62
4	4.43	3.40
5	4.34	2.99
6	2.98	2.43
7	2.22	2.28
8	1.98	1.39
9	1.11	1.15
10	0.94	0.91
11	0.74	0.89

Based upon the above tests as well as inspection of the resulting structure and pattern matrices, a decision was made to retain eight factors for this solution. This decision, however, was made only after rotations involving seven and nine factors respectively were performed and the resulting matrices analyzed. Although nine factors appeared to be indicated by some of the above tests, rotations with nine factors resulted in the ninth factor having only two items with absolute value loadings greater than .30.

Communality Values

After deciding upon eight factors, the PA2 program was utilized with the specification of eight factors. Since a specification of a particular number of factors necessarily determines the communality estimates, different initial estimates were utilized in this analysis. The final communality values represented the amount of variance in a variable that was explained by the eight common factors. These values are presented in Table 8. With the exception of item 1, all items had

Table 8

Final Communalities

Need Item	Communality	Need Item	Communality
1	.266	34	.634
2	.504	35	.625
3	.445	36	.384
4	.659	37	.609
5	.487	38	.486
6	.630	39	.460
7	.598	40	.474
8	.618	41	.432
9	.579	42	.495
10	.663	43	.612
11	.692	44	.544
12	.646	45	.514
13	.619	46	.514
14	.485	47	.415
15	.613	48	.496
16	.541	49	.526
17	.662	50	.554
18	.545	51	.622
19	.587	52	.595
20	.556	53	.578
21	.716	54	.590
22	.742	55	.624
23	.692	56	.443
24	.681	57	.573
25	.642	58	.532
26	.705	59	.642
27	.579	60	.598
28	.778	61	.663
29	.652	62	.723
30	.585	63	.551
31	.673	64	.603
32	.589	65	.399
33	.612	66	.554

communality values greater than .38 with a large majority of items having communalities greater than .50. These values indicated that at least half of the variance for the majority of the variables was explained by the eight common factors. Item 28 (Learning How to Find Job Openings) had the highest communality (.778), and four other variables had communalities greater than .70 (Items 21, 22, 26, and 62). These values were determined as a result of the specification of eight factors, and a decision to retain a different number of factors would have resulted in different communality values.

Final Eigenvalues

The final eigenvalues associated with the eight-factor unrotated solution are presented in Table 9. These eigenvalues for the eight factors totaled 38.09 which represented 57.7% of the total variance. One major factor accounted for 64.3% of this 57.7% common variance with the remaining factors accounting for rapidly diminishing proportions of shared variance.

Table 9

Final Eigenvalues, Percent of Variance, and Cumulative Percentages of Eight Factors

Factor	Eigenvalue	% of Variance	Cum. %
1	24.49	64.3	64.3
2	4.33	11.4	75.7
3	2.80	7.3	83.0
4	2.28	6.0	89.0
5	1.29	3.4	92.4
6	1.15	3.0	95.4
7	.94	2.5	97.9
8	.81	2.1	100.0

Factor Rotation

An oblique rotation with a delta value of 0 was performed on the eight-factor unrotated structure matrix. The resulting pattern matrix is presented in Table 10. The elements of the pattern matrix represented the unique contribution of each factor to the variance of the variables associated with the factor but did not indicate the overlapping variance between the correlated factors. Therefore, these elements cannot be viewed as direct correlations between the variables and the factors, an interpretation possible with orthogonal rotations.

The summed squared loadings (SSL) for the obliquely rotated factors are presented in Table 11. Due to the nature of the pattern matrix, the size of the SSL only indicated the relative importance of each of the factors. Therefore, a direct interpretation regarding the proportion of common variance accounted for by each rotated factor was not possible as would have been the case with an orthogonal rotation. The pattern matrix did, however, present clusters of items which comprised the respective factors.

Interpretation of Factors

Any interpretation of factors must be accomplished by analyzing the items which significantly load on the factors. The items which significantly loaded on the factors are presented in Tables 12-19. Note that items 41 (Learning How to Make Better Use of Library Facilities) and 56 (Getting My Family Interested in My Education and Career) were the only items which did not load significantly on any of the eight factors.

Table 10

Factor Pattern Matrix

Item	Factor 1	2	3	4	5	6	7	8
1	-.008	-.086	-.333	.197	-.047	-.008	.070	-.078
2	.002	.029	-.566	.184	-.083	.086	.082	-.193
3	.114	.054	-.516	.035	-.191	.009	.091	-.165
4	-.001	-.008	-.806	-.037	-.030	.028	.017	-.014
5	.003	-.056	-.688	-.033	.064	.034	-.015	.050
6	.164	-.014	-.678	-.009	.092	-.044	-.126	.224
7	.055	-.065	-.701	.019	.071	-.011	-.048	.136
8	.578	-.058	-.220	.056	-.052	.018	.062	-.122
9	.576	-.023	-.188	.022	-.095	.023	.070	-.100
10	.676	.005	-.148	.044	-.073	.067	.022	-.124
11	.691	-.031	-.023	.077	.065	.160	.181	-.078
12	.662	-.147	-.009	.105	.093	.111	-.019	.032
13	.613	-.116	-.116	-.059	.008	.015	-.100	.219
14	.538	-.076	-.001	-.001	-.026	.105	-.077	.201
15	.661	.020	-.036	.082	-.042	.096	.038	.025
16	.372	-.118	-.170	.094	-.103	.131	-.024	.064
17	.375	-.041	-.442	.034	-.014	.003	-.059	.188
18	.553	-.086	-.078	.024	-.057	.076	-.122	.129
19	.572	-.130	-.086	.103	-.056	.014	-.027	-.026
20	.305	-.457	-.045	.161	-.018	-.014	-.008	-.039
21	.132	-.794	.035	.051	-.061	-.086	-.131	-.027
22	.131	-.776	.020	.116	-.018	-.087	-.096	.006
23	.025	-.793	-.047	-.036	-.053	-.013	-.134	.115
24	.049	-.690	.019	.210	.019	-.035	-.098	.050
25	.029	-.777	.050	.031	.043	.038	.024	.025
26	.018	-.818	.016	.034	-.028	-.014	-.031	.010
27	-.008	-.717	.057	.081	.091	.083	.093	-.040
28	-.043	-.920	-.035	-.102	.018	.010	.115	-.034
29	-.061	-.752	-.123	-.090	-.098	.051	.110	-.039
30	-.056	-.660	-.089	-.006	-.087	.122	.087	-.081
31	-.048	-.837	-.019	-.036	.004	.033	.042	-.030
32	.117	-.112	-.058	.632	-.118	-.048	-.088	-.073
33	.064	-.141	.016	.667	.049	.085	.023	-.026
34	.181	-.069	-.024	.706	-.035	-.047	-.116	-.059
35	.005	-.025	-.116	.530	-.005	.154	.157	.122
36	-.114	-.194	-.058	.342	-.030	.116	.033	.180
37	-.010	-.095	-.120	.395	.135	.200	.219	.236
38	-.039	-.039	-.143	.482	-.025	.068	.046	.173
39	-.022	-.067	-.114	.254	.078	.150	.168	.337
40	.175	-.072	.008	.192	.022	.192	.341	.109

Table 10 (Cont.)

Factor Pattern Matrix

Item	Factor 1	2	3	4	5	6	7	8
41	.079	-.074	-.212	.199	-.183	.063	.094	.109
42	.035	-.094	-.034	.063	-.003	.556	.069	.053
43	.043	-.136	-.059	-.018	.021	.380	.424	.116
44	.019	-.027	-.016	.040	-.198	.211	.334	.255
45	.099	.070	-.085	.019	-.050	.064	.038	.603
46	.008	-.013	-.033	.015	-.142	.046	.061	.597
47	-.084	.007	-.036	.304	-.093	.018	.018	.442
48	-.026	-.108	-.055	.325	-.092	.125	.064	.294
49	.049	.019	-.090	.458	-.185	-.011	.109	.185
50	.063	-.009	-.184	.274	-.354	-.035	.134	.126
51	.142	-.124	-.078	.013	-.246	-.009	.432	.182
52	.230	-.028	-.061	-.082	-.301	-.025	.315	.291
53	.356	.011	-.088	.055	-.420	-.085	.136	.073
54	.351	-.021	.032	-.034	-.363	-.025	.313	.104
55	.348	-.071	.066	-.011	-.385	.023	.260	.102
56	.229	-.011	.041	.014	-.246	.278	.065	.132
57	.095	-.006	-.047	.061	.045	.706	-.009	-.030
58	.102	-.053	.031	-.013	.035	.630	.115	.046
59	.010	-.018	-.043	-.035	-.282	.697	-.216	-.061
60	-.071	-.101	-.149	.050	-.542	.210	.069	-.023
61	.126	-.074	-.071	-.031	-.602	-.018	.193	.074
62	-.024	-.128	-.035	.074	-.731	.086	-.058	.035
63	-.036	-.088	-.016	.181	-.589	.116	-.118	.046
64	.029	-.126	.019	.058	-.642	.074	.026	.028
65	.041	.022	-.006	-.011	-.349	.311	.051	.098
66	.192	-.001	.020	-.078	-.452	.267	-.130	.187

Table 11

Summed Squared Loadings
for Eight Factor Oblique Solution

Factor	SSL
1	7.21
2	4.94
3	3.49
4	3.40
5	3.07
6	2.52
7	2.00
8	1.42

The first factor had items 20-31 with significant loadings. As shown in Table 12, these items concerned the need for assistance in obtaining information, training, experience, and opportunities for jobs. The unique contribution of this factor to the variance of these items ranged from 21.2% for item 20 to 84.6% for item 28. The first factor was entitled Interest in Job and Career Planning.

The second factor contained significant loadings for items 8-20 and 53-55 as presented in Table 13. These items related to improving the personal welfare of the students apart from the academic setting. The area of concern indicated by these items would be pertinent to the student seeking help to get his/her life "in order". The variance contribution of this factor ranged from 9.6% for item 20 to 47.6% for item 11. This factor was named Concern For Personal Welfare.

The third factor consisted of items 50, 52-55, and 60-66 as presented in Table 14. Many of the items clustering on this factor focused on relations with other people and the problems inherent with some of these relationships. While these concerns appeared to be general, some of the items dealt with specific relationship problems such as discrimination and marital stress. The variance contribution of this factor ranged from 9.0% for item 52 to 53.3% for item 62. This factor was denoted Personal Relationships.

The fourth factor, as displayed in Table 15, was comprised of items 1-7 and 17. Items 1-7 dealt with improving and developing basic academic skills, and item 17 concerned learning effectively. The unique variance contribution of factor 4 ranged from 10.9% for item 1 to 65.6% for item 4. This factor was called Need for Basic Academic Skills.

Table 12

Factor Loadings for Factor 1--

Interest in Job and Career Planning

Item		Loading
20	Identifying career areas which will fit my current skills, abilities, and interests.	.46
21	Learning about job opportunities in my career interest areas.	.79
22	Learning more about training requirements for jobs I'm interested in.	.78
23	Learning about the income potentials of jobs in my career interest areas.	.79
24	Learning where to get the training necessary for jobs in my career interest areas.	.69
25	Getting some full-time job experience in a new career area.	.78
26	Arranging to discuss my career interests with people employed in the same area.	.82
27	Obtaining part-time work in my career interest area.	.72
28	Learning how to find jobs.	.92
29	Learning more about how to interview for a job.	.75
30	Learning how to develop a personal vita or resume.	.66
31	Learning what jobs are available near where I wish to live.	.83

Table 13

Factor Loadings for Factor 2—

Concern For Personal Welfare

Item		Loading
8	Developing and demonstrating confidence in myself.	.58
9	Learning how to handle pressure from friends, family, instructors and myself.	.58
10	Learning how to better make decisions and solve personal problems.	.68
11	Becoming more independent.	.69
12	Setting goals in my life.	.66
13	Learning how to manage my time better.	.61
14	Learning how to budget money more wisely.	.53
15	Learning how to maintain my physical and mental health.	.66
16	Understanding my rights and responsibilities as a consumer.	.37
17	Learning effectively on my own.	.37
18	Learning how to use my leisure time to get more out of life.	.55
19	Identifying my strengths and abilities.	.57
20	Identifying career areas which will fit my current skills, abilities, and interests.	.31
53	Understanding and expressing my personal values.	.36
54	Learning how to make more or closer friends.	.35
55	Learning how to improve my personal appearance.	.35

Table 14

Factor Loadings for Factor 3--

Personal Relationships

Item		Loading
50	Learning how to communicate better with instructors.	.35
52	Getting along better with the people I work with.	.30
53	Understanding and expressing my personal values.	.42
54	Learning how to make more or closer friends.	.36
55	Learning how to improve my personal appearance.	.39
60	Gaining a better understanding of people of different races and cultural backgrounds.	.54
61	Dealing with people who think and feel differently than I do.	.60
62	Learning how to deal effectively with community problems.	.73
63	Learning how to participate in governmental activities.	.59
64	Dealing objectively with discrimination (race, sex, age, etc.).	.64
65	Coping with marital stresses and problems.	.35
66	Dealing with the conflicts of job, family, and education.	.45

Table 15

Factor Loadings for Factor 4—

Need for Basic Academic Skills

Item		Loading
1	Increasing my skills in mathematics.	.33
2	Improving my writing skills.	.57
3	Developing my speaking ability.	.52
4	Improving my understanding of what I read.	.81
5	Improving my reading skills.	.69
6	Improving my study skills and habits.	.68
7	Learning how to take tests better.	.70
17	Learning effectively on my own.	.44

Table 16 presents Factor 5 which consisted of items 32-38 and 47-49. These items were concerned with the academic problems of entering or returning to college. Items which related to advisement, enrollment, financial aid, transfer of credits, and other concerns clustered on this factor. The unique variance contribution of this factor ranged from 9.0% for item 47 to 50.4% for item 34. This factor was labeled Institutional Reentry Concerns.

The 6th factor consisted of items 42-43, 57-59, and 65. The items, as presented in Table 17, which loaded significantly on this factor dealt with problems of a family nature. In contrast to Factor 3 which generally concerned personal problems, Factor 6 focused on marital and family problems and problems of handicapped students. These problems appeared to be centered more within the family. The variance contribution of this factor ranged from 9.6% for item 65 to 50.4% for item 57. This factor was labeled Special Family Problems.

Factor 7, consisting of items 39 and 45-47, is presented in Table 18. The variance contribution of this factor ranged from 13.7% for item 39 to 36.0% for item 45. These items seemed to center on the problems of the working student. Items dealing with resolving job and class conflicts and receiving credit for past work expereince loaded on this factor. This factor was entitled Working Student Concerns.

The items loading on Factor 8 (40, 43-44, 51-52, and 54) created a difficult interpretation of this last factor. Items 40, 44, and 51 had not loaded on any previous factor while the other three items had previously loaded on other factors. The first three items dealt with special services, and the latter three items seemed to deal with

Table 16

Factor Loadings for Factor 5—

Institutional Reentry Concerns

Item		Loading
32	Getting advice about my educational plans.	.63
33	Learning more about entrance requirements for educational programs that interest me.	.67
34	Selecting an educational program to meet my interests and skills.	.71
35	Learning more about enrollment procedures (registration, fee payment, etc.).	.53
36	Learning more about financial aid for students my age.	.34
37	Obtaining help with college re-entry procedures.	.40
38	Learning more about graduation requirements.	.48
47	Learning how to get course credit through nontraditional means (CLEP, job experience, etc.).	.30
48	Learning about noncredit courses that will meet my needs.	.32
49	Learning how to work with my academic advisor.	.46

Table 17

Factor Loadings for Factor 6 —

Special Family Problems

Item		Loading
42	Obtaining child care services.	.57
43	Obtaining special services for physically handicapped students.	.38
57	Coping with the problems of being a single parent.	.71
58	Dealing with the problems of divorce or separation.	.63
59	Raising children in today's complex society.	.70
65	Coping with marital stress and problems.	.31

Table 18

Factor Loadings for Factor 7—

Working Student Concerns

Item		Loading
39	Learning more about how to transfer prior credits.	.37
45	Arranging a class schedule that will not conflict with my current job.	.60
46	Obtaining access to college offices at times other than when I work.	.60
47	Learning how to get course credit through nontraditional means (CLEP, job experience, etc.).	.44

relationships with other people. This factor was labeled Special Problems. The unique variance contribution of the last factor ranged from 9.6% for items 52 and 54 to 18.5% for item 51. The loadings for Factor 8 are displayed in Table 19.

The above eight factors were labeled through an interpretation of the items which significantly loaded on the respective factors. It is noted that different interpretations and labels by other researchers would be possible. However, it is believed that the underlying constructs of these factors has been determined. In particular, the eighth factor, although statistically reliable as a factor, did present problems with its interpretability. It is admitted that other studies may have resulted in the elimination of this factor from the final solution.

Multivariate Analysis

To test the hypotheses, factor scores were computed as dependent measures for each subject on the eight factors. Separate MANOVAs were performed at the .05 level of significance on the 8 dependent variables of factor scores. Separate univariate analyses were conducted on the dependent variables following a significant MANOVA. To avoid inflation of the overall level of significance, these ANOVAs were conducted at an adjusted level of significance = .00625. Although this decision might be viewed as being overly conservative, such a decision is statistically tenable. Scheffe post-hoc procedures were employed, when appropriate, to determine significantly different pairs of means. It should be noted that due to the scaling of the original variables, higher factor score

Table 19

Factor Loadings for Factor 8--

Special Problems

Item		Loading
40	Securing transportation to and from campus (carpooling, mass transit, etc.).	.34
43	Obtaining special services for physically handicapped students.	.42
44	Learning how to get around campus (parking, building names, etc.).	.33
51	Learning how to relate better with younger students.	.43
52	Getting along better with the people I work with.	.31
54	Learning how to make more or closer friends.	.31

means actually indicate less need on a particular factor.

These analyses were performed respectively with the following independent variable categories:

1. Sex
   a. Male
   b. Female

2. Type of School
   a. State University
   b. Community College
   c. Liberal Arts College
   d. Women's College

3. Age
   a. 26-29 Years Old
   b. 30-39 Years Old
   c. 40-49 Years Old
   d. 50-61 Years Old
   e. 62 Years Old and Older

4. Marital Status
   a. Single (Never Married)
   b. Married
   c. Divorced, Separated, or Widowed

5. Number of Dependent Children in Family
   a. None
   b. One Child
   c. Two Children
   d. Three Children
   e. Four or More Children

6. Years Out of School
   a. 0-1 Year
   b. 2-5 Years
   c. 6-9 Years
   d. 10-14 Years
   e. 15-19 Years
   f. 20 or More Years

Sex

A multivariate Wilk's lambda = .8957 and Hotelling's T-square = 3.9095 indicated a significant difference ($p<.0001$) between the means for male and female students. Separate univariate analyses then

resulted in significant differences for two of the dependent variables. The indicated significant differences in Factor 2 - Concern for Personal Welfare ($F = 11.09$, $p = .001$) and Factor 3 - Personal Relationships ($F = 7.86$, $p = .005$).

Separate t-tests were performed for each of these factors to define the differences within the factors. Table 20 indicated a significant difference in male and female need means on Factor 2 and Factor 3 ($p<.001$). The direction of the means showed a higher need among females when compared to males on both Factor 2 and Factor 3.

Type of School

A significant difference among the type of schools was indicated by a significant Wilk's lambda = .7445 ($p<.0001$). The corresponding F-value was 6.86 with 24 and 1513.76 degrees of freedom. Separate univariate analyses indicated significant F-values for factors 1, 2, 4, and 5 ($p<.0001$ for each, with the largest F-value (16.61) on Factor 4 - Need for Basic Academic Skills.

Post-hoc Scheffe results are displayed in Table 21. On the Interest in Job and Career Planning factor (1), the means for state university students and liberal arts college students were significantly different from the mean for women's college students. This result revealed a greater need on this factor for students enrolled in the two former colleges. Also, the mean for state university students was significantly greater than the means of both community college and liberal arts students on the Concern for Personal Welfare factor (2). State university students, therefore, showed less need for assistance with their personal welfare. Scheffe post-hoc procedures further

Table 20

t - Values for Means of Significant ANOVAs Based on Sex

Category	Male n = 150	Female n = 384	t
Factor 1 Means	.0740	.0096	
Factor 2 Means	.2390	-.0523	3.33*
Factor 3 Means	.2052	-.0390	2.80*
Factor 4 Means	-.0305	.0552	
Factor 5 Means	.1201	-.0056	
Factor 6 Means	.1629	-.0069	
Factor 7 Means	-.1298	.0861	
Factor 8 Means	-.0402	.0655	

Note . Higher means indicate less need.
* $p < .001$.

Table 21

Scheffe Tests for Comparing Means of Significant ANOVAs Based on Type of School

Women's Category Colleges	State Universities n = 241	Community Colleges n = 58	Liberal Arts Colleges n = 156	n = 86
Factor 1 Means	-.0507	-.0376	-.1297	.4027
State Universities				
Community Colleges				
Liberal Arts Colleges				
Women's Colleges	*		*	
Factor 2 Means	.2111	-.2395	-.1763	-.1102
State Universities				
Community Colleges	*			
Liberal Arts Colleges	*			
Women's Colleges				
Factor 3 Means	-.1443	-.0061	.4014	-.3198
Factor 4 Means	.1648	-.0542	-.4068	.3127
State Universities				
Community Colleges				
Liberal Arts Colleges	*			*
Women's Colleges				
Factor 5 Means	.1443	.0061	-.4014	.3198
State Universities				
Community Colleges				
Liberal Arts Colleges	*	*		*
Women's Colleges				
Factor 6 Means	.0725	-.1260	-.1447	.1443
Factor 7 Means	.0099	.0013	-.0855	.1265
Factor 8 Means	-.0610	.0880	.0197	.0760

Note . Higher means indicate less need.

* $p < .05$

indicated significantly greater need by liberal arts students compared to the needs of state university and women's college students on the Need for Basic Academic Skills factor (4). On the Institutional Reentry Concerns factor (5), the mean for liberal arts college students was less than the mean for the other three school groups. Therefore, liberal arts college students showed greater need than the other college groups for assistance on this factor.

Age

Significance among the means of the different age categories was indicated by a Wilk's lambda = .8226 ($p<.0001$). Univariate significant F-values were as follows: Factor 1 ($F = 5.20$, $p = .0001$), Factor 2 ($F = 3.65$, $p = .006$), Factor 6 ($F = 4.31$, $p = .002$), and Factor 8 ($F = 6.07$, $p = .0001$).

The post-hoc results are presented on Table 22. On the Interest in Job and Career Planning factor (1), the need shown by the 30-39 age group was greater than the need indicated by the 40-49 year-old students. The mean for the 26-29 year-old group was significantly higher than the mean for the 30-39 year-old group when tested on Factor 2 (Concern for Personal Welfare). This result indicated a lesser need for 26-29 year olds. Students who were 40-49 years old showed less need than the 30-39 year-old group on the Special Family Problems factor (6). Lastly, the means for students aged 26-29, 30-39, and 40-49 years old were significantly higher than the mean for students 62 years old and older on Factor 8 (Special Problems). This result indicated that students who were 62 years old and older had a greater need when

Table 22

Scheffe Tests Comparing Means of Significant ANOVAs Based on Age

	Age				
Category Means	26-29 n = 126	30-39 n = 235	40-49 n = 104	50-61 n = 37	62+ n = 25
Factor 1	.0543	-.1471	.2550	.2845	.3851
26-29					
30-39					
40-49		*			
50-61					
62+					
Factor 2	.2401	-.1027	.0894	.1730	-.1771
26-29					
30-39	*				
40-49					
50-61					
62+					
Factor 3	-.1719	.0422	-.1639	-.1206	-.1764
Factor 4	.1943	-.0733	.1103	.0524	-.0893
Factor 5	-.1929	.0345	-.1439	.0286	.4327
Factor 6	.1429	-.1009	.2029	.3049	-.0313
26-29					
30-39					
40-49		*			
50-61					
62+					
Factor 7	-.0403	.0559	.0363	.1149	.0133
Factor 8	.0065	.1515	.0552	-.0721	-.6521
26-29					
30-39					
40-49					
50-61					
62+	*	*	*		

Note . Higher means indicate less need.
* $p<.05$

compared to the other age groups for assistance on the Special Problems factor (8).

Marital Status

A multivariate Wilk's lambda = .8528 indicated a significant difference among the means of the marital status categories ($p<.0001$). The results indicated that three of the factors exhibited significant univariate F-values: Factor 1 ($F = 9.20$, $p = .0001$), Factor 5 ($F = 10.28$, $p = .0001$), and Factor 6 ($F = 15.80$, $p = .0001$).

The results from Scheffe post-hoc procedures, presented in Table 23, showed that divorced, separated, and widowed students indicated greater need than married students on the Interest in Job and Career Planning factor (1). On the Institutional Reentry Concerns factor (5), the mean for married students was higher than both the other two marital status groups. This result indicated that married students had less need for assistance on this factor. Both single student and married student means were significantly different from the mean for divorced, separated, or widowed students when the Special Family Problems factor (6) was analyzed. The direction of the means showed a greater need for assistance by divorced, separated, and widowed students when compared to single and married students on this factor.

Number of Dependent Children

A Wilk's lambda = .6904 ($p<.0001$) indicated significance differences among the means of the number of dependent children categories. The results revealed significant F-values for Factor 5

Table 23

Scheffe Tests Comparing Means of Significant ANOVAs Based on Marital Status

	Matital Status		
Category	Single n = 79	Married n = 317	Div/Sep/Wid n = 132
Factor 1 Means	-.1161	.1690	-.2215
Single			
Married		*	
Div/Sep/Wid			
Factor 2 Means	-.1042	.1050	-.0828
Factor 3 Means	.1758	-.0234	.0795
Factor 4 Means	-.0863	.1149	-.0971
Factor 5 Means	-.1516	.1780	-.2000
Single			
Married	*		*
Div/Sep/Wid			
Factor 6 Means	.1990	.1495	-.3033
Single			
Married			
Div/Sep/Wid	*	*	
Factor 7 Means	-.0119	.0493	-.0135
Factor 8 Means	-.1665	.0682	.0791

Note . Higher means indicate less need.
* Denotes pairs of means significantly different with $p<.05$

($F = 3.80$, $p = .005$), Factor 6 ($F = 17.10$, $p = .0001$), and Factor 8 ($F = 8.19$, $p = .0001$).

Table 24 presents the results of post-hoc procedures for these three factors. On the Institutional Reentry Concerns factor (5), the means for students with one and two children were significantly different from the mean for students with four or more children. Students with four or more children indicated greater need than the other two groups on this factor. The mean for students with no children indicated significantly less need compared to the need for the other child groups on the Special Family Problems factor (6). Also, on this factor, students with one child and with two children had significantly different means than students with four or more children. Lastly, on the Special Problems factor (8), students with one child, two children, and three children indicated less need for assistance than students with no children.

Years Out of School

A significant Wilk's lambda = .8173 ($p<.0001$) indicated a significant difference among the means for the number of years out of school categories. Separate univariate analyses revealed that three of the dependent variables had significant F-values. Factor 1 had an F-value of 4.00 ($p = .0001$), Factor 5 an F-value of 3.63 ($p = .005$), and Factor 6 an F-value of 5.17 ($p = .0001$).

The follow-up results are displayed in Table 25. Students who had been out of school 2-5 years and 10-14 years had significantly different need means than students who had been away from school 20 years or more when the Interest in Job and Career Planning factor (1) was considered.

Table 24

Scheffe Tests Comparing Means of Significant ANOVAs Based on Number of Dependent Children

Category	Number of Dependent Children				
	None	1	2	3	4+
	n = 219	n = 96	n = 143	n = 52	n = 23
Factor 1 Means	.0908	.0014	.0593	-.0135	-.5159
Factor 2 Means	-.0383	.0620	.1256	.0276	.0114
Factor 3 Means	.0656	-.0381	.0236	.1377	-.3052
Factor 4 Means	-.0103	.0801	.1363	-.1714	.1010
Factor 5 Means	.0029	.0714	.1715	-.0201	-.5928
None					
1					
2					
3					
4+		*	*		
Factor 6 Means	.3423	-.1594	-.0771	-.1953	-.7637
None					
1	*				
2	*				
3	*				
4+	*	*	*		
Factor 7 Means	-.0673	.0170	.1230	.1100	.1035
Factor 8 Means	-.2017	.1722	.1920	.2612	.2280
None					
1	*				
2	*				
3	*				
4+					

Note . Higher means indicate less need.

$^{*}p < .05$

Table 25

Scheffe Tests Comparing Means of Significant ANOVAs
Based on Years Out of School

Category	Years Out of School 0-1	2-5	6-9	10-14	15-19	20+
Factor 1 Means	.1401	-.1295	.0627	-.2091	-.1162	.3257
0-1 Years						
2-5 Years						
6-9 Years						
10-14 Years						
15-19 Years						
20+ Years		*		*		
Factor 2 Means	.1611	.0184	.0559	-.1419	-.1726	.1317
Factor 3 Means	.0936	.1591	-.1403	-.2310	.0074	.1143
Factor4 Means	.2112	.0135	-.0190	.0183	-.1859	-.0144
Factor 5 Means	.2808	-.0907	.0490	-.1847	.0263	-.0593
0-1 Years						
2-5 Years						
6-9 Years						
10-14 Years	*					
15-19 Years						
20+ Years						
Factor 6 Means	.0363	.1042	-.0184	-.3475	.0647	.2994
0-1 Years						
2-5 Years						
6-9 Years						
10-15 Years		*				*
15-19 Years						
20+ Years						
Factor 7 Means	-.0163	-.0615	-.0285	- .1319	.2592	.2167
Factor 8 Means	-.0309	.0320	.0322	.0150	.2969	-.0453

Note . Higher means indicate less need.
* $p<.05$

The means showed that students who had been out of school for 20 years or more had less need on this factor than the other two groups of students. On the Institutional Reentry Concerns factor (5), students who had a delay of less than one year in their education indicated less need than students who experienced a delay of 10-14 years. The need means for students who had been out of school for 2-5 years and 20 or more years was significantly larger on the Special Family Problems factor (6) than the mean for students who had been out of school for 10-14 years. Therefore, the former two groups of students had less need for assistance on this factor than the latter group of students.

Second-Order Factor Analysis

In order to perform a second-order factor analysis, the factor correlations presented in Table 26 were subjected to principal factor analysis in the same manner as were the original variables. Two second-order factors resulted from the iterative extraction procedure. The final eigenvalues, communalities, and pattern matrix are presented in Table 27. The eigenvalues of the two unrotated factors totaled 3.0557 which represented 38.20% of the common variance. An oblique rotation was also employed on these two factors.

The first second-order factor consisted of the Interest in Job and Career Planning (1), Concern for Personal Welfare (2), Need for Basic Academic Skills (4), and Institutional Reentry Concerns factors (5). These items appeared to deal with problems that were internal to the students. Students having these concerns would be faced with problems that they would have to resolve themselves. Factors 1 and 4 loaded

Table 26

Correlations of the Eight Identified Factors of the ALNAS

Factor	1	2	3	4	5	6	7	8
1	1.000							
2	-.418	1.000						
3	-.507	.348	1.000					
4	.300	.512	-.452	1.000				
5	-.423	.306	.307	-.262	1.000			
6	.357	-.392	-.297	.319	-.419	1.000		
7	.205	-.141	-.209	.183	-.276	.313	1.000	
8	.264	-.178	-.228	.307	-.313	.341	.233	1.000

Table 27

Summary Table for Second-Order Factor Analysis

First Order Factors	Initial Eigenvalue	% of Variance
1	3.2414	40.5
2	1.0430	13.0
3	.8027	10.0
4	.7589	9.5
5	.7311	9.1
6	.5515	6.9
7	.5127	6.4
8	.3588	4.5

Firt Order Factors	Final Communality	Final Eigenvalue	% of Variance
1	.4074	2.6458	86.8
2	.4655	.4099	13.4
3	.3086		
4	.4808		
5	.4222		
6	.4298		
7	.2091		
8	.2424		

positively on this second-order factor, and Factors 2 and 5 loaded negatively. These loadings are presented in Table 28. Factors 2 and 5 dealt with problems that students would need to resolve initially. After obtaining assistance with these problems, students could then concentrate on academic problems such as basic skills and career concerns. This factor was entitled Internal Student Concerns.

The latter second-order factor consisted of the Concern for Personal Welfare (2), Personal Relationships (3), Special Family Problems (6), Working Student Concerns (7), and Special Problems factors (8). These loadings are presented in Table 29. These factors dealt with external problems of the students. To resolve these problems the student would need to deal with other people such as spouses, children, bosses, and friends. All items except the Personal Relationships factor loaded positively on this second-order factor. The Concern for Personal Welfare factor loaded on both these second-order factors. Students would necessarily have an interest in their welfare as a prerequisite for their relations with other people. This factor was labeled External Student Concerns.

Summary

The students in this sample can be described as adult learners or nontraditional students on the basis of the demographic variables used in this study. These students were more likely to be female, white, married without children, employed full-time, out of school for a period of 2-5 years.

Principal factor analysis resulted in the extraction of eight factors underlying the Adult Learner Needs Assessment Survey. These

Table 28

Factor Loadings for First Second-Order Factor--

Internal Student Concerns

First-Order Factors		Loading
1	Interest in Job And Career Planning	.69
2	Concern for Personal Welfare	-.39
4	Need for Basic Academic Skills	.55
5	Institutional Reentry Concerns	-.73

Table 29

Factor Loadings for Second Second-Order Factor--

External Student Concerns

First-Order Factors		Loading
2	Concern for Personal Welfare	.31
3	Personal Relationships	-.62
6	Special Family Problems	.58
7	Working Student Concerns	.50
8	Special Problems	.46

eight factors accounted for 57.7% of the total variance and were obliquely rotated to obtain eight definable clusters of items. These factors were labeled: (a) Interest in Job and Career Planning, (b) Concern for Personal Welfare, (c) Personal Relationships, (d) Need for Basic Academic SAkills, (e) Institutional Reentry Concerns, (f) Special Family Problems, (g) Working Student Concerns, and (h) Special Problems.

Multivariate analyses were performed to test for significant differences among factor score means based on sex of the students, type of school of the students, and other demographic variables which included age, marital status, number of children, and number of years out of school. All MANOVAs reulted in significant differences among factor means ($p<.0001$) for all demographic variables.

Separate ANOVAs were then performed on the eight dependent variables to determine significant F-values within the dependent variables. Scheffe post-hoc procedures were utilized to reveal significantly different pairs of factor score means.

Numerous pairs of means were found to be significantly different throughout the dependent variables. Students who were older; had more children; were divorced, separated, or widowed; or had been away from school for longer periods of time tended to have higher need means on the different factors than other students.

A second-order factor analysis was performed on the factor correlations of the above described factors. Two second-order factors resulted from the extraction process. An oblique rotation resulted in two definable clusters of items. These two higher-order factors were labeled Internal Student Concerns and External Student Concerns.